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ABSTRACT

This paper discusses four major developments in the use of media at the Open University: (1) the move from radio to audiocassettes; (2) use of broadcast television vs. videocassettes; (3) increased use of interactive video; and (4) CYCLOPS tutorials, which provide immediate two-way communication via the telephone together with visual pictures. Each new program is discussed in detail, including information on its costs and extent of current use. In conclusion, it is noted that the most substantial change was from radio to audiocassettes, a program that represented real cost savings because it employed low cost, easy, in-house technology. Other changes have come with less ease, and it is observed that although the change to videocassettes, videodiscs, CYCLOPS, or other programs does not necessarily entail reduced costs, these programs do provide additional benefits. (EW)

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Recent and Future Trends

in Media

at the Open University

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Abstract

This paper discusses in detail four major developments in the use of media at the Open University: the move from radio to audio-cassettes; broadcast TV vs. Video-Cassettes; Interactive Video, and CYCLOPS. This paper links in with papers numbers 220 and 222.

RECENT AND FUTURE TRENDS IN MEDIA

AT THE OPEN UNIVERSITY

- A.W. Bates -

Impact of election result:

The Move from Radio to Audio-Cassettes

In 1978, OU was transmitting 1500 radio programmes per year, and producing over 300 new programmes
26 hours a week TX time.

By 1983, no. of radio programmes transmitted had dropped from 1500 to 500 and from 26 hours to less than 12 hours a week.

Three reasons: transmission times; effectiveness; audio-cassettes
Radio times deteriorated in quality: in 1983, times are as follows:

Weekdays:	morning	06.15 - 07.00
	evening	23.20 - 00.20

Weekends	morning	06.55 - 08.00
		23.20 - 24.00

Because of anticipated difficulties with TX times, OU began audio-cassette loan-scheme in 1977; students could borrow (for cost of postage) copies of radio programmes.

40,000 requests a year, 28p (3 kr.) per request for OU.

In subsequent years, many radio programmes have been transferred to cassette and sent out with course mailing.

But most significant step in 1978: M101 made cassettes integrated with course material - since then, many more courses have made cassettes as cassettes.

In 1982, 260,000 cassettes were mailed to students

In 1983, 1 million anticipated.

Production may be by BBC (2/3) or in our own A/V studio (1/3).

Stages:

1. Academic works on tape and text at home (with tape-recorder) and produces integrated script - sometimes, producer goes out and collects resource material which academic can integrate with text.
2. Academic produces draft script, discussed with producer, then recorded/edited in studio.
3. Master tape goes for fast copying - 60 copies per minute - a reel-to-reel 1/4" tape.
4. Cassette machine cuts up tape, packages in cassettes.
5. Cassettes are stamped with label details.
6. Cassettes sent to Correspondence Services: mailed to students with texts.
7. Student keeps cassette.

All done in-house - costs 50p from master tape to student for C60. Students take 2-3 hours to work through C60: so works out at 25p per hour of study. Courses with large cassette allocation sometimes given less text (40 pages instead of 48).

About £40,000 in equipment plus 2-3 staff.

Radio TX costs about £250 an hour: so cassettes clearly cheaper for courses with less than 500 students.

Students rate cassettes much more highly than radio - as valuable as texts on some courses: over 90% already had AC machines at home.

Broadcasts or Video-Cassettes?

Not so simple with video.

In 1978: 1500 broadcast TV programmes: 35 hours a week, 250 new programmes a year.

Like radio, TV times deteriorated in quality: in 1983, times are as follows:

Weekdays:	mornings	06.05 - 08.10
	evening	17.10 - 17.35
	night	23.30 - 00.20
Saturday		06.25 - 15.10
Sunday		06.25 - 13.55

Viewing figures on transmission dropped from 64% in 1978 to 51% in 1982

- directly as a result of poor times
- however STILL 35 hours a week: so COSTS same.

A VC replay scheme was first suggested by my group in 1975, but a VC scheme is much more expensive than AC's and until recently few people had a VC machine at home.

However, impact of TX times becoming so severe that a small-scale national scheme agreed for 1982: limited to 20,000 requests on 27 courses with low student numbers and no repeat TX's.

10 copies of each programme made on banks of 10 slave-machines (U-matic master; VHS slaves; time-based corrector).

Programmes have one broadcast transmission - students who want tape write in; up to four tapes for one month.

If more than 10 of a programme requested at one time, another 10 copied.

Regions each given a sum of money and told to spend it the way they thought best. Could locate machines in OU study centres, get facilities at another college, give machine to student to share with others, put in public library - regional offices decided - all regional equipment to be rented.

Cassettes mailed to students' home. Up to a student where he plays it:

- at home, if own machine
- at work or a friend's
- at a local centre - notified by students' regional office.

Student then mailed cassette back to centre, where it is stocked for re-use (not copied).

Scheme cost £171,000 (1.7 million kr.) to set up:

£82,000 for regions
£31,000 on copying equipment
£37,000 on cassettes
£12,000 on salaries at centre
£9,000 on consumables,
£171,000

How did the scheme work?

1. 6,000 requests from students
2. Only 1/3 of copying done for students:
 - 1/3 for regions, of foundation course programmes
 - 1/3 from other users - tutors, central academic staff.
 - costs of tapes found by other users - about 17,000 requests in all (near 20,000 limit).
3. Increased viewing rate in courses within scheme by 8% - more than repeats would have done.
4. 99% of tapes returned by students.
5. Regions located 311 viewing centres. Regions put nearly all machines in study centres - but only 9% of student requests played there - students used home or work - essential to locate/ or borrow machines in libraries (public or college) where access easy and staff available.
6. Encouraged more students to get own machines.

System extended for 1983 to 82 courses: stocks of tapes added each year.

Encouraged course teams to design programmes as cassettes (i.e. NOT for transmission) - 12 courses now planned for non-broadcast video in 1984 - we can deliver 16 programmes on 4 cassettes for £2 per programme per student (marginal cost).

However, for BROADCASTS, will eventually need to switch to student recording: however, only 43% with convenient access in 1982, and only 20% in home - can't expect people to record at work.

Except for small courses (less than 500) broadcasting will still be necessary for long time, on grounds of cost and access.

Interactive Video

It takes 2 years to design an OU course: it runs for 8 years - courses being considered now will be running in 1982!

So we are looking to the day when most students have a video-cassette machine or video-disc.

We have linked up microcomputer with VHS machine for two reasons:

- 1) this may be what students have in home
- 2) we can simulate video-disc design.

DEMONSTRATE IF POSSIBLE

Video-disc of particular interest: last year more VD's sold in America than pre-recorded video cassettes

From educational point of view, very exciting

At the moment, only interested in optical, laser systems

Two kinds of PAL player: Philips industrial model: £1200 with in-board micro
Pioneer VD 1100 Laservision @ £400 without micro.

You can link external micro direct to Pioneer and have full micro control.

Demonstrate "Bird" disc.

Three ways to make educational video-discs:

- (a) Off-the-shelf VDU's - like "Bird" disc - where instructor can design own computer-programme to control and teach via VD - costs price of VD (about £10) plus computer programming (about £100 if standard package used).
- (b) Adaptation of existing TV programme: re-editing, still frames inserted, with special computer programme written - costs about £6,000 -£10,000 to make, plus costs of discs.
- (c) Designed-from-scratch VD, with special computer programme: costs £30,000 - £40,000 to produce, minimum: 35 minutes straight through: 3-4 hours to use.

Different Uses:

- 1. Summer school - Teddy Bear disc.
- 2. Training techniques where mastery needed: Nebraska flying disc.
- 3. Simulation: oil-rigs, CEGB.
- 4. Data-base: 54,000 paintings! Archeology; geology; research procedures; diagnosis.

CYCLOPS

Explain CYCLOPS $\begin{cases} \text{distance teaching} \\ \text{tape} \end{cases}$

Need for visual component for telephone teaching: British Telecom grant, 22 courses in 15 centres: 600 students over 2 years in East Midlands.

Show video cassette

OR: Student procedure:

1. Goes to face-to-face briefing at start of course.
2. Gets dates, times and locations of CYCLOPS tutorials.
3. Goes to study centre, gets key from caretaker, gets trolley from cupboard, plugs in to telephone system. Switches on CYCLOPS, TV set (British Telecom installed jack-plugs and modems for trolley).
4. Waits to be called up by OU's own conference bridge operator in regional office at set time (OU rented own 14-line conference bridge). Called up on both data phone (presses screen with light pen to check connection) and voice phone (presses button on LST, so hands are free or others can hear).
5. When all study centres called up (takes 5-10 minutes) tutor starts - up to 7 centres; all students can hear; all can write on screen (and be seen by all others); tutor can also transmit pre-prepared diagrams/tables, etc., stored on audio-cassette.
6. At end of tutorial, student switches off, wheels trolley to cupboard, locks up, leaves key and goes home.

After initial technical and human problems, very successful educationally.

Students preferred it to every other tutorial arrangement except regular face-to-face (which was impossible on courses where CYCLOPS was used, because of low numbers in each area).

However not become used more widely in OU for following reasons:

1. Equipment needs improvement: Mark II soon available; Univ. did not want to buy old equipment.
2. Two lines very expensive: waiting for a one-line modem being developed by British Telecom.

3. Can be reduced to microchip to go into BBC micro - and thus become a low-cost terminal by end of this year.
4. To extend system, capital investment required: not a saving but provides service that could not otherwise be provided

By 1984, when further technical developments have been completed, decision regarding 1985 operation throughout OU expected.

In the meantime, CYCLOPS is being used in Indonesia on a US AID satellite project, and firm plans to use it for distance teaching by a Polytechnic in South West of England. Also been used in schools.

OPTEL

The OU is also developing its own in-house PRESTEL viewdata system. While compatible with PRESTEL, it uses a different structuring system, aiming to develop a system based on keywords rather than branching.

Being used primarily for administrative processes (e.g. updating course information) - the OU has already separate computer system for student records using computer terminals in regional offices.

OPTEL development is slow - only one or two staff, high cost of transferring "paper" information to OPTEL - but without large and comprehensive data-base, not much use.

Conclusions

Biggest change: audio-cassettes: low cost, easy "in-house" technology; actual savings

Otherwise, change and innovation has proved very difficult at OU.

Video-cassettes, video-discs, CYCLOPS, OPTEL, do not mean reduced but additional costs, although they do also offer additional benefits.

e.g. video-cassettes - still got to transmit because of students without VCR's; can't transfer money from BBC budget - so extra cost on OU - makes broadcasting even more expensive.

VD's: more expensive to produce even than Broadcast TV - can't even find the £2000 needed for mastering.

Problems partly unique to OU: OU based on mass communication model of 1960's; locked in to contract with BBC - £10 million which cannot be moved into new technology; and a method of course production based on large course teams, and printed matter.

This does not mean though that other ventures cannot benefit from these new technologies: but while the new technology offers tremendous potential for OE, they are not a cheap and easy solution to all our problems.